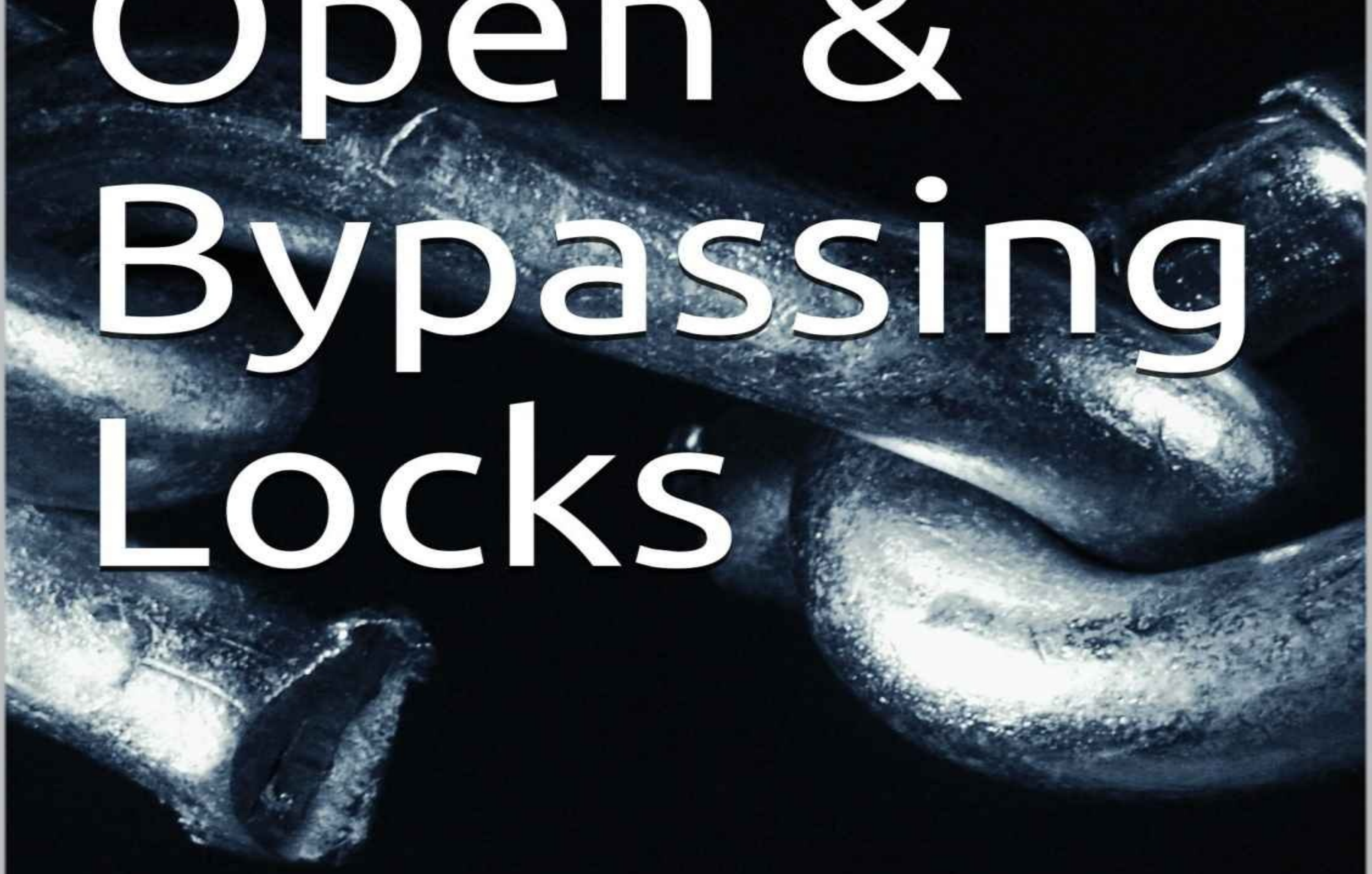
Drilling Open & Bypassing Locks



(Why Every Building Needs High Security Products & Alarms)

Drilling Open & Bypassing Locks (Why Every Building Needs High Security Products & Alarms)

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Introduction

Burglars normally do not drill locks in order to commit burglaries. In my 25 years as a locksmith, I have only encountered two burglaries where drills were used. The first drill attack I noted was carried out on a residence. The burglar used a drill to completely obliterate a deadbolt cylinder in order to gain entry. The second one I noted took place on the back door of a business. Here, the burglar drilled out the door jamb where the deadbolt bolt entered the jamb. Although the jamb was heavy metal, and although the jamb was filled with concrete, the attack was successful and the door was opened. Before we go any further, I want to lay out for you the specifics of each scenario.

Residential Attack

This attack was done by a person who did not know how to drill out a deadbolt cylinder. The person carrying out this attack guessed that, by drilling out the entire core of the lock, the lock could be opened. He was right: no core, no need for a key. What makes this kind of attack easy is that standard, home-owner grade locks are very cheaply constructed. Instead of being made of high-grade metal, these locks are usually made of gray pot metal. This metal is very soft. However, it should be noted that drilling out the entire core can result in other problems, making the lock more difficult to open.

Commercial Attack

This attack was done by a person who was extremely practical and had good common sense. By looking between the crack of the door and jamb, the bolt of the lock could be clearly seen. Since all deadbolts have only a one inch throw, the burglar knew he had to remove one inch of metal jamb. The burglar drew an outline on the jamb where the bolt was and then proceeded to drill a series of “postage stamp” sized holes. When the holes were finished, he inserted a flat-head driver, tapped the driver into the holes, and removed a nice, square piece of metal. Then, using a hammer and driver, he chipped out the jamb concrete. Using a crowbar, the burglar then easily pried to door apart where the door lever latch could be seen entering the jamb. The deadbolt had been deactivated through removal a door jamb material.

In this attack, no amount of money spent on a door lever and deadbolt, not to mention latch and bolt guards, could have prevented this forced entry. Even if the locks in question had been drill resistant, high-security locks like Medeco or Mul-T-Lock, the entry could still have been made. Note that, in this scenario, the locks had simply been bypassed altogether.

Solutions?

I am convinced that any burglar who wants to break into a home or place of business is going to figure out how to do so. I have seen burglars kick doors in, bust windows and climb through (often leaving a trail of blood behind), enter cooking vents in restaurants, punch holes though the vents into the ceilings, and drop down into offices. I have seen burglars drill locks, drill jambs, use crowbars to spread door apart and use vice grips to remove lock cylinders.

The solution for the homeowner is not a single solution, nor will there ever be a single solution. The homeowner must have drill-resistant deadbolts and handles, motion lights, and a burglar alarm. Not only that, a homeowner must have all of the bushes and shrubs around their homes either trimmed back massively or removed altogether. Believe it or not, a protective, noisy dog is also a great security feature, as is a community or neighborhood watch.

The solution for the commercial property is to do away with the lever and deadbolt altogether. Not only is having two locks on an emergency exit against the law as well as being a life safety hazard, having two locks that can be accessed on the outside are little more than invitations to burglars. Burglars know where the locks are and how they can be compromised. All businesses today must have rear doors that incorporate a panic or exit device. This device complies with safety codes and can be used to exit the property in the event of an emergency. But this is not enough. Each rear and side exit door on a business needs a Detex EAX-500 exit alarm to discourage internal theft, and an Exit Security Bar for after hours door security. The outside of the doors should have no visible handle or lock mechanisms. By omitting these visible indicators, the burglar will have no point of reference with which to attack any of the locking features.

Purpose of this book

The purpose of this book is to show you, the locksmith, how locks are drilled open and defeated in order for you to start thinking how homes and businesses can be better secured. Not only will I show you how to drill open residential locks, but I will also show you how to compromise commercial locks. Included here will be information about how burglars are getting through store front glass doors without even using drills and how you can stop it! Not only will you come to see and understand the vulnerability of commercial locks, but I will show you how high-security locks like Medeco and Assa can be compromised. This will include the cabinet locks and coin deposit boxes that are found on carwashes. What I will show are some basic principles that will enable you to begin thinking outside of the box. It is my hope that, by sharing this information, you may become the person who develops a new product that can defeat burglars who are gaining entry into properties by using these methods. The problem is real; and, with the advent of the internet, there are no more secrets. My book, however, contains real information unlike what you will find on the internet.

A note about pictures

Although I will show you a few pictures illustrating the topics I will be discussing, it isn't necessary to include a picture of every single lock being drilled. A straightly drilled hole is a hole, right? Use your common sense. I will use a few generic locks that have been marked for drill points and then explain to you the process. Do not fear, you will get "the picture". If you must have pictures, scour the internet, there are plenty there.

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Drilling standard locks at the sheer line

If have not read any of my other books available at Amazon, please take the time to download my ebook, The Basics of Lock Cylinder Rekeying. This book is only $2.99. Just go to Amazon Books and type in the search column, "David Calvin Locksmith". This will help you understand just how standard locks operate and how they are pinned up.

Drilling the lever/knob

In brief, when you drill for the sheer line of a lock cylinder, you are drilling to obliterate that sheer line. In a lock cylinder, you have top pins coming down under spring pressure that meet and stop at bottom pins. These bottom pins are activated by the proper key. When the key is inserted, the bottom pins and top pins created a straight sheer line. That sheer line meets where the key plug (the part of the cylinder where the key is inserted) meets the outer part of the lock called the shell. See the picture below.

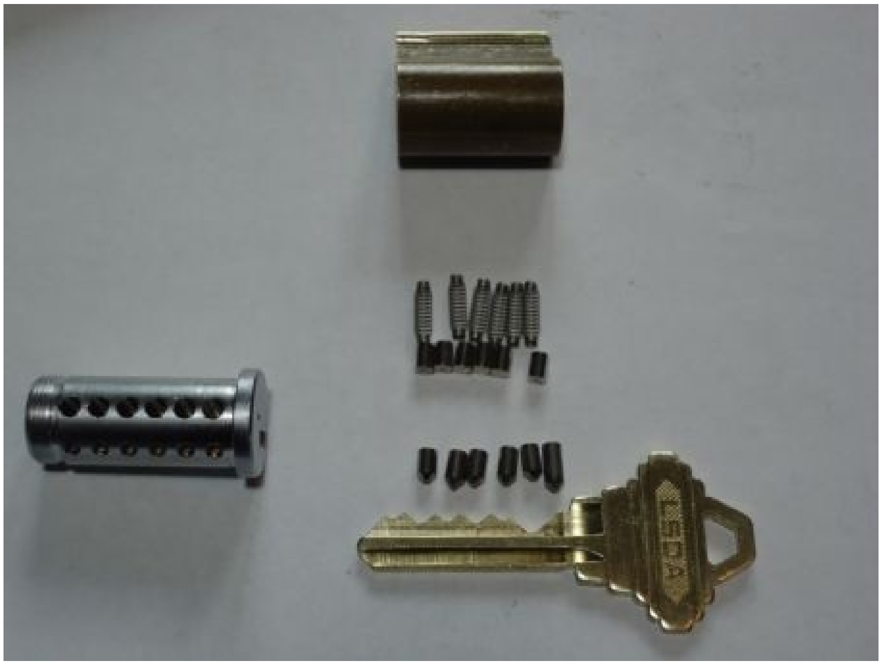
Figure 1 - Unassembled key-in-knob commercial cylinder

So, what do we have in this picture? On the top we have the shell. Below the shell we have 1) the top springs that 2) push down the top pins that 3) engage the bottom pins (which are right above the key and have points on the bottom). Of course, all of these pins, tops and bottom, achieve a sheer line at top of the silver plug you see on the left. So, if NO key is inserted, there is not sheer line and the key cannot turn. Basically, the top pins, under spring pressure, are being pushed down into the silver plug on your left, blocking the plug from turning in the housing or shell.

In order to drill this plug out, which is necessary if you are called to re-key a commercial lever or knob and the key is missing, you will have to drill a ¼ hole through the front of the cylinder, just above the keyway. You do not want to drill into the lever itself because you will damage the lever. So, if you place your bit above the key hole at a point where the outer circumference of the drill bit just barely misses the opening in the lever where the cylinder is inserted, you will hit the sheer line. See photo below where I used a Sharpie marker to mark what that hole would look like.

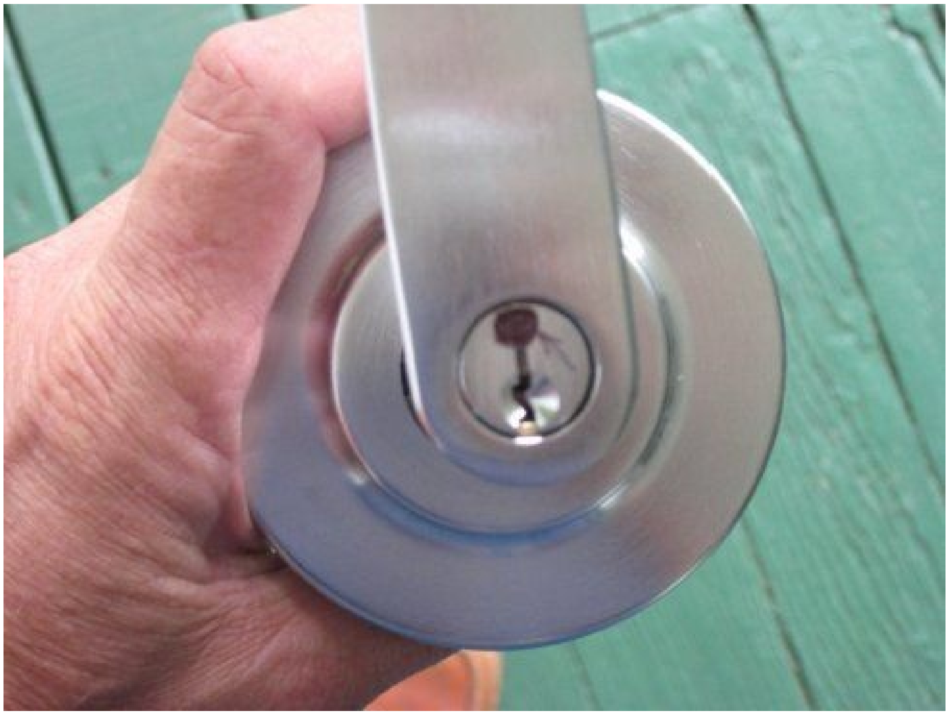

Figure 2 - Commercial Lever

Notice that the key would be inserted with the cuts of the key facing in the direction where there is more metal showing on the cylinder face. When this lock is installed on a door, the keyway will be facing either to the right or to the left.

When drilling this cylinder, drill straight in, being careful to drill neither at and upward or downward angle, nor to the left or right. If you do drill at any kind of angle, you will have trouble using a flat head screwdriver to turn the cylinder plug to the open (or remove) position. If, after you have drilled, you find you cannot turn the cylinder enough to open the lock or to depress the catch (shown below) then you can go to the next drill bit up and widen the hole. Or, you can wobble the drill bit and enlarge the hole so that the cylinder will turn. Please note: after 25 years, I still drill some of these incorrectly and have to wobble the drill bit. Just focus and drill straight. Do not keep drilling deeper and deeper into the lock, as you will destroy the lock. Look into the lock as you drill and you will see the pin chambers, top and bottom. If you only see four, you have 1 or 2 left to go.

Now, when you are drilling, you will hear as your bit passes each tumbler. You will feel a lurch and a sound variation as the bit cuts through a tumbler. Listen for 5 pins but do know that there are often 6 pins in some of these commercial cylinders. After 5 pins, insert your driver and try to turn the cylinder. You can easily look into the hole you drilled and see if any debris or pins are hanging in the keyway and are keeping you from turning the plug. As I drill, I use a soft-handled screwdriver and hit the front of the cylinder to agitate and loosen any material. When you hit the lock, the debris will just fall out. Once the cylinder turns, insert a small probe into the hole on the lever and, while keeping the cylinder turned against its spring pressure, depress the catch and pull the lever off. Reinsert a new cylinder. See figure 3 below.

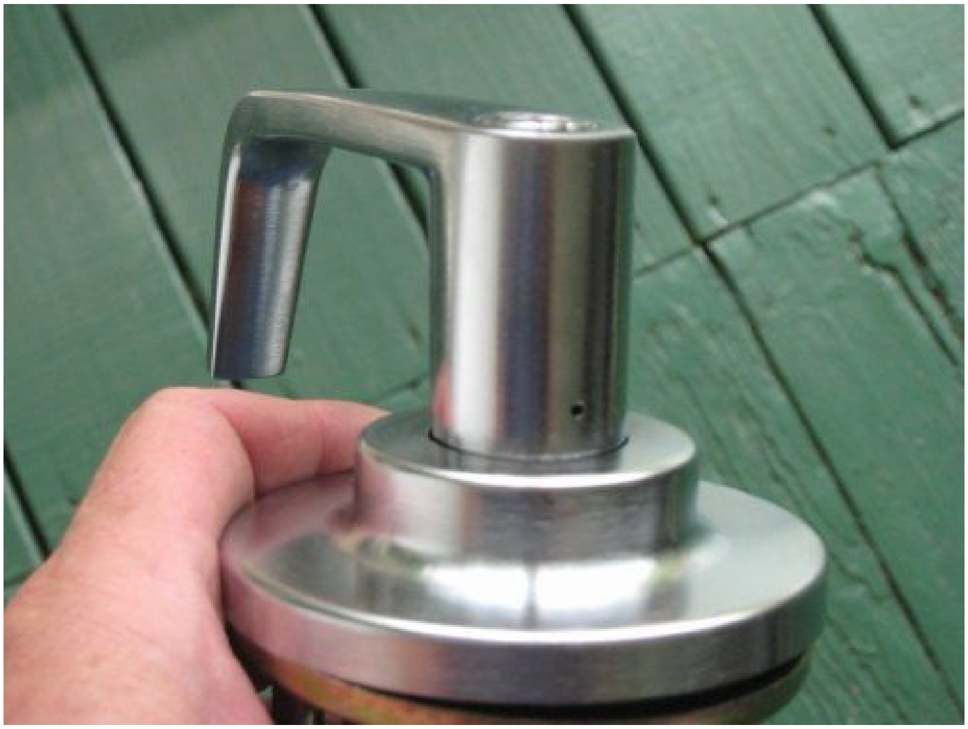

Figure 3 - Lever catch

I had one of these recently where the high-security plug could not be drilled because of some inner lock malfunction. My “under-the-door” tool would not open the lock. I could not drill the core. So, the only thing I could do was take my drill and just completely destroy the lever. I drilled straight down on top of the lever about where it meets the round rose. As soon as the bit went through and hit the straight cam attached to the cylinder, the outside lever just popped off. Nothing I could do short of this would allow me to open the door for the customer. Technically, if you could get a saws-all into position, you could just cut the lever clean off of the rose section, reach in with a small flat-blade driver, and open the lock. (I do not do this; but contractors do.)

Glass storefront mortise locks

The glass storefront lock system, which uses a 1” mortise cylinder inserted into an Adams-Rite lock, is solid and dependable. However, it is a security nightmare. If your customers are using this system, and most are, you must sell them drill-resistant cylinders, cylinder collars, and perhaps even a latch guard. As I have already said, anybody who wants into a building will eventually get in. Your job, however, is to make it difficult and time consuming. This door is vulnerable to forced entry in four ways.

1. **Drilling the cylinder.** By using a ¼ inch bit, this cylinder is drilled using the same methods we used for the lever. There is, however, something you need to know. If you drill in too far, you will sheer off the operating cam on the back of the cylinder. If you do that, the cam will no longer work and your using a screwdriver will have no effect. So, when you drill this cylinder, you drill for 5 pins. Sometimes, there will be six. If it is a six

pin cylinder, it will usually be sticking out from the door with a large collar around it. Just look into the drill hole as you go along. Here is the drill point below.

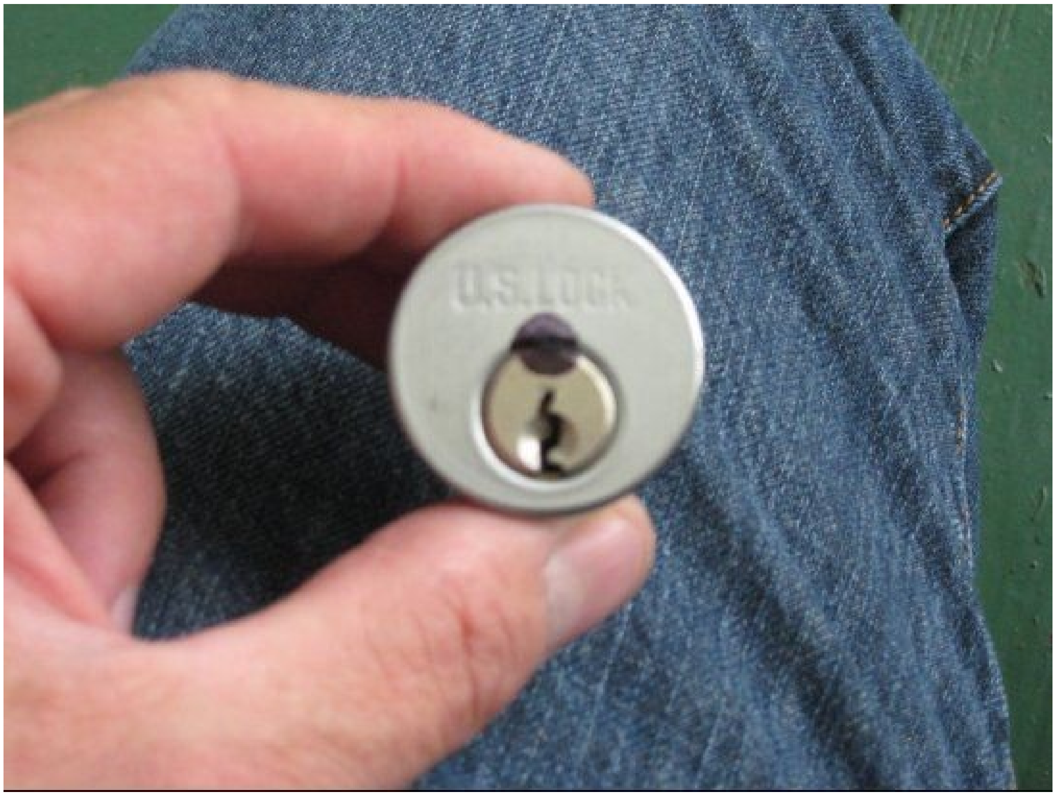

Figure 4 - Mortise cylinder

Notice that the sheer line here must be drilled half on the plug and half on the shell. As we have already said, drill straight. Below is the picture of the cam. Be careful you do not drill off the cam nub!

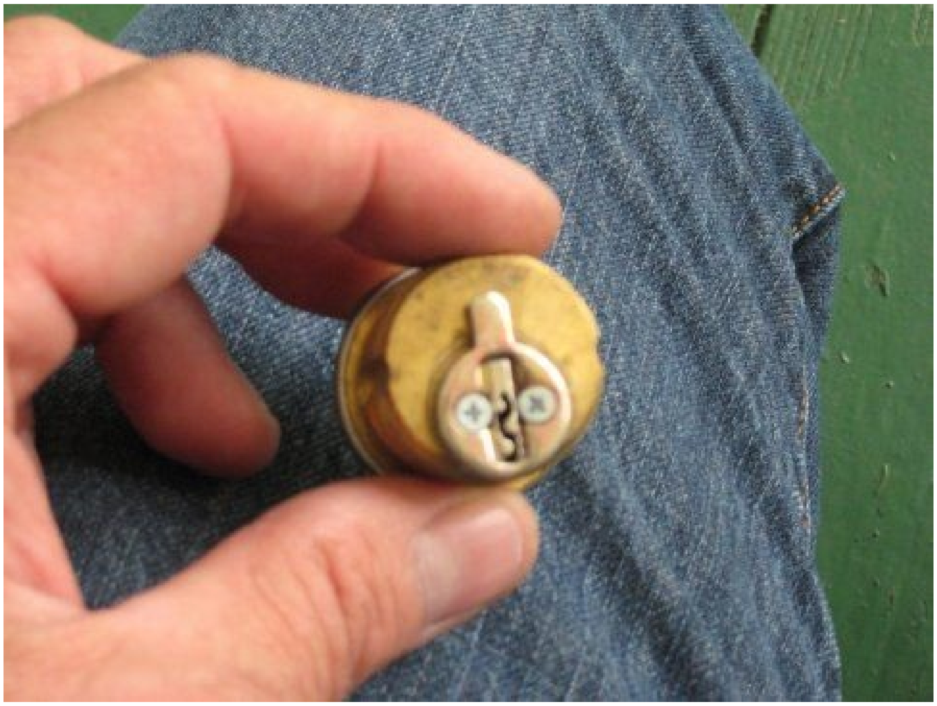

Figure 5 - Cam nub

expensive and come on packages of six. They are easy to install and have a great markup. After you drill the cylinder and open the door, remove the cylinder and replace. See my book at Amazon Books.

2. **Vice Grip removal.** This is something that is being quite a bit these days by people who want to

gain entry or by locksmiths who have no clue what they are doing. Because people are using Vice Grips to open these doors, you must sell your customers an anti-Vice Grip collar. In order to remove a lock with Vice Grips, just install the grips and unscrew the cylinder counter clockwise. When the cylinder is removed, use a small screwdriver, reach into the hole, and push the Adams-Rite activator towards the bolt lock. After the lock has been removed, you will need to replace the lock and the set screw in the Adams-Rite lock. The set screw will be bent. But, by using a flat blade driver, you can reach into the hole in the door and leverage the screw until it snaps off. In the event part of the screw remains in the threaded portion of the Adams-Rite lock, you can use a driver to screw it in until if falls off into the door, or you can drill it out. If you drill, use a smaller. Most of the time, when the smaller bit is going in, it will itself screw the set screw remnant inward until it falls out. If you strip the threads on the Adams-Rite lock, you can tap the screw hole or replace the Adams-Rite lock.

Keedex makes a great collar. They are not very

Figure 6 - Keedex Collars

3. Saws-All forced entry. I have seen construction workers locked out of double glass doors where one of the doors utilizes the Adams-Rite glass door deadbolts. By using a Saws-All equipped with an appropriate blade, the bolt of the lock, which is visible between the two doors, is easily and quickly cut. The solution? There is none. Latch guards can help; but they too can be cut through. An alarm may be the only option.

4. Crowbar attack. Most storefront glass doors are aluminum; and aluminum is about as strong as butter on a warm day. Where the Adams-Rite lock bolt swings into the stationary door or jamb a crowbar will easily crack the aluminum, thereby enabling the locked bolt to swing freely through the hole in the jamb. I have reinforced aluminum jambs with heavy steel which I through-bolted with carriage bolts. It is time for door a frame manufacturers to start “beefing” up these doors with hardened steel.

Panic bar cylinders

The panic bar cylinder is as prone to drilling as the mortise lock. You will see a panic bar cylinder whenever you see an outside door trim that looks like this. See figure 7 and 8 below.

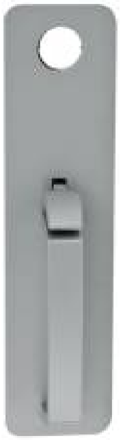

Figure 7 - Panic bar outside trim

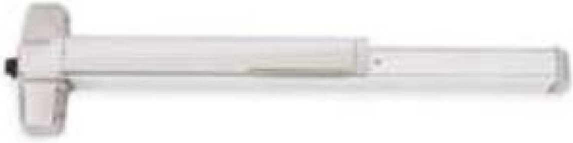

Figure 8 - Panic bar inside

When you see a standard lock cylinder on the outside of the door, whether inside trim, or just sitting there in the metal of the door, the cylinder is vulnerable to drill attack. Drill as you would a standard mortise cylinder above. You can also drill for the screw holes, remove the lock, and reach in with a screwdriver and unlock the door. (See below.) In my mind, the solution for rear and side business doors is that no cylinder should be exposed. Instead, if your customers must have access through the rear door from the outside, they should consider installing an electronic access system consisting of a touch pad and a magnet lock.

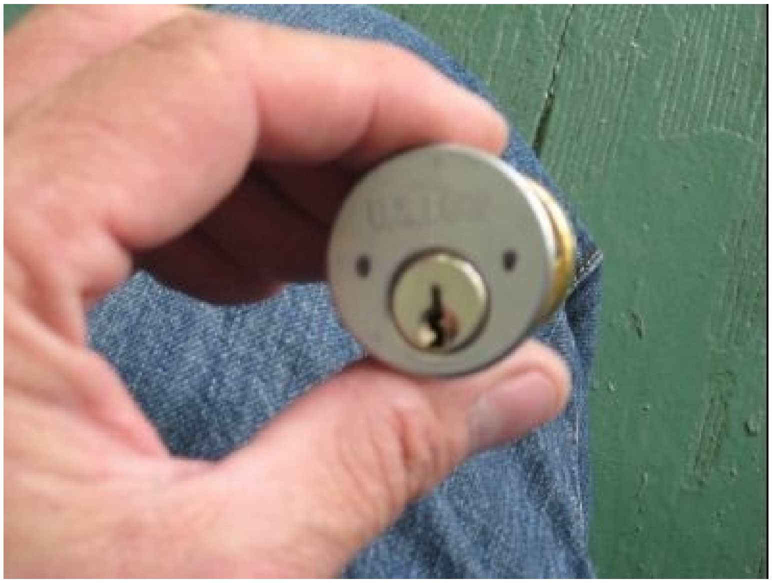

Figure 9 - Note two screw holes for rim cylinder

Drilling the residential lock

Drilling the residential lock uses the same procedure as outlined above for commercial lock cylinders. This holds true for both deadbolt and knob/lever. However, in the event your customer cannot bet into the house and the lock will not work, you can drill for the screws which hold the locks onto the door. See below.

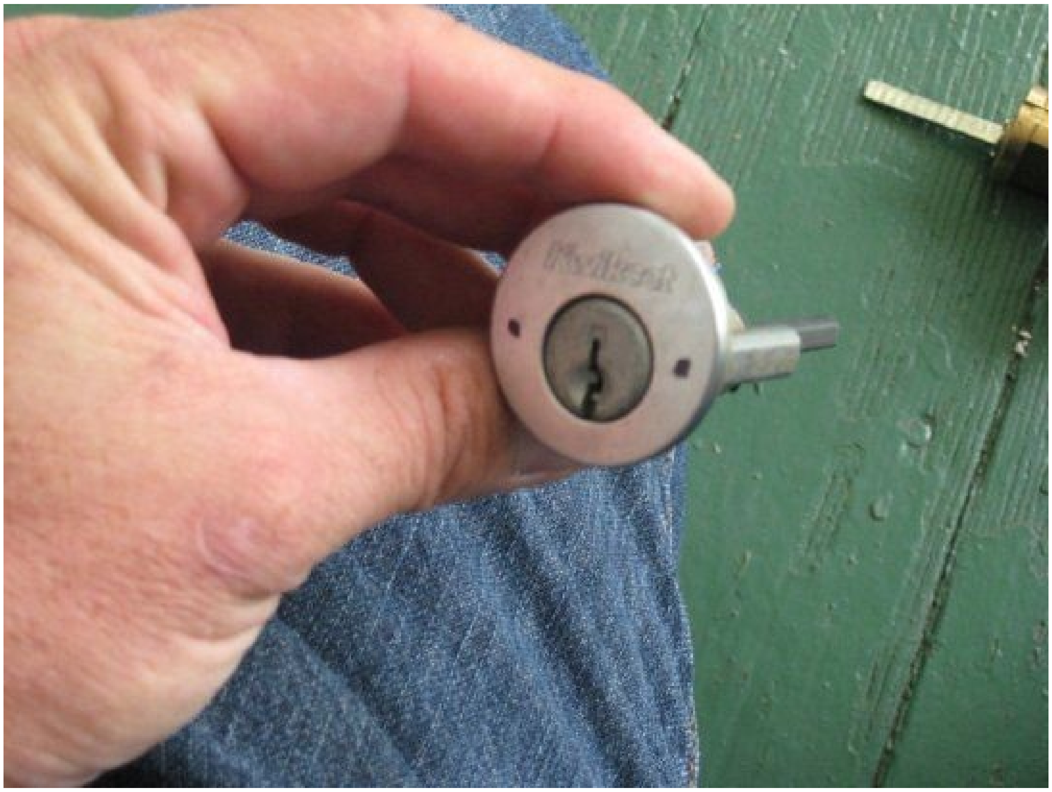

Figure 10 - Deadbolt screw holes location

This is an example of why manufacturers of home locks should reassess how home locks are made. Home quality locks, such as are found at hardware stores, are cheap to buy; but they are really no security at all. Not only can the screw holes be drilled, but the keyways can be drilled as well. You can help your customers by installing high-security locks like Medeco and Mul-T-Lock. These locks, though pricey, have drill-resistant plugs and shells, and have hardened ball bearings blocking the screw holes. However, even these features, though they will slow down a burglar with a drill, can still be compromised. I have, myself, compromised Medeco locks in as little as five minutes with a drill.

Also, if home owners cannot afford to install high-security locks, they can afford the Exit Security Incorporated “Ring Bolt”. This device is mounted on the inside of the door and can resist up to 800 pounds of force. When this product is used, the locks are no longer the point of entry into the home.

Drilling the Medeco

You will find this lock on homes, businesses, and carwashes. This lock is a nice product and has a number of protective devices in place to help prevent lock picking and drilling. Since I do not have a Medeco lock on hand, I will show you how the protective features of the lock are bypassed. I will use a common, ordinary cylinder to show you how I am able to open defective Medeco cylinders that no longer work. First, I will discuss how the security features are bypassed on the standard commercial and residential grade cylinders. I will note, however, that no burglar is going to waste his or her time doing this. Although I have done this in five minutes, I do not think many other people can.

The Medeco lock has top and bottom pins that are blocked by a hardened steel insert so that a drill bit cannot be placed on the lock face and simply drilled through the lock. This insert is placed in the exact spot you would drill on a standard lock cylinder. Medeco also uses hardened inserts on a side bar that is located at the 3 o’clock position near the keyway. In order to drill this lock, a person must first remove the hardened inserts. Note the picture of a standard cylinder below. I have marked the areas where the inserts are located. I will explain the multiple dots after you look at the picture.

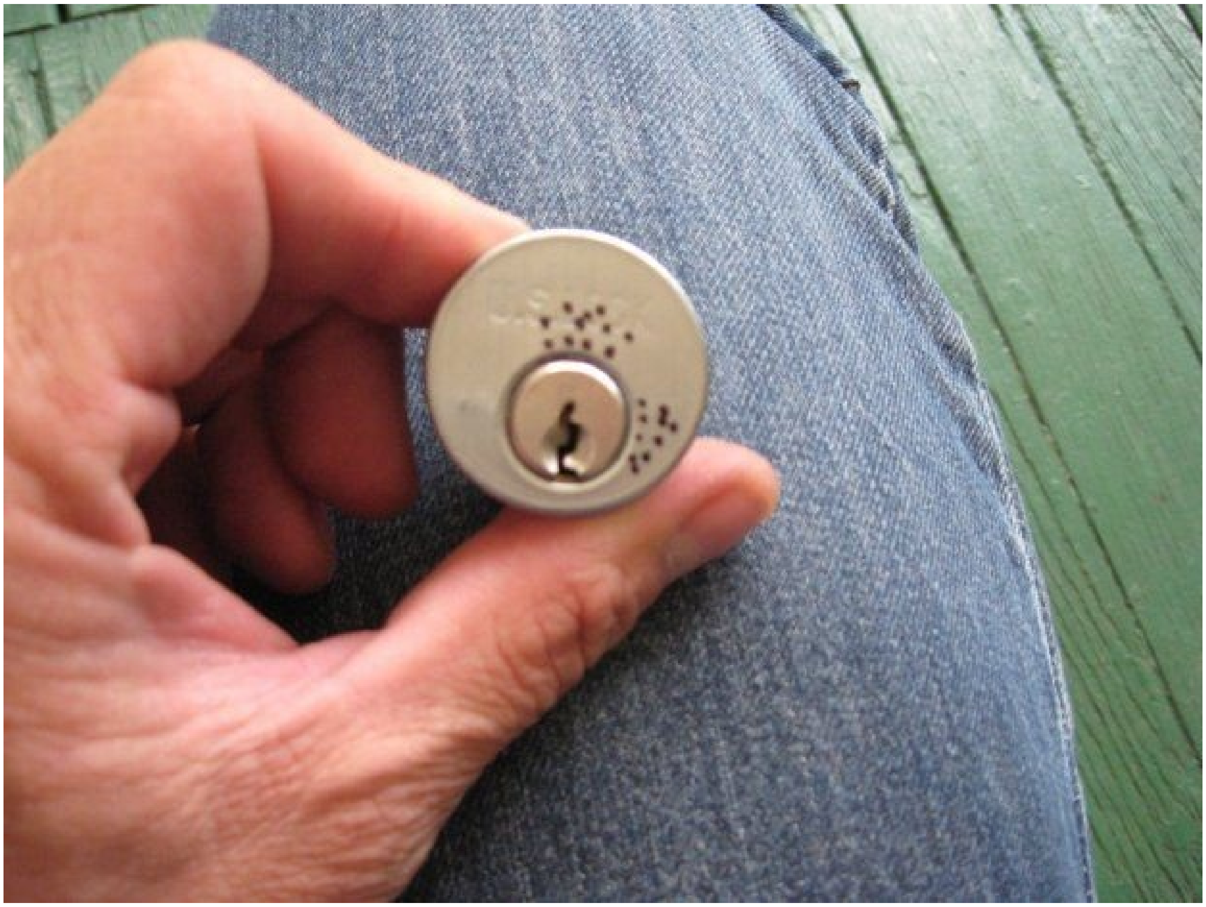

Figure 11 - Medeco insert points

These dots represent places where I use a small standard drill bit to stipple the normal metal of the lock that covers the hardened insert. I take the bit and drill these stipples down in the softer metal until I find, or hit, insert. This insert is not very deep. In fact, you may dull a bit or two as your proceed. After you have made Swiss cheese out of the sections that are marked above, you can take a tine chisel or driver and tap into and snag the jagged soft metal from around the insert. Then, slip a strong sharp object or driver under the edge of the insert and pop it out. As you are drilling around, you will eventually define the area where the insert is. At the 3 o'clock position you will find some hardened roller-type inserts. (Actually, I have forgotten which are where – which proves you will seldom need to do this!) But, when you are drilling the soft metal away, the inserts will be revealed in their shallow positions. Pry them out. Then, using a ¼ mason bit, drill straight in as you would a standard mortise cylinder. Then, drill through the side bar which runs from the front of the lock to the rear at the 3 o'clock position. Use a driver to open.

Medeco locks in car washes have side bars only. These locks fail and drilling is the only way to replace them. Drilling the Medeco is a time-consuming job and no criminal would ever take the time to go through this.

The solution for car washes is video surveillance. In fact, if you have a customer with a car wash, they are being broken into on a regular basis anyway. If they do have a video surveillance program, they are not using their minds. Surveillance is a must!

Soda machine locks

Soda machine locks are easy for me to open with a drill. Licensed locksmiths can get a specially made hole saw that opens these locks easily. I use drill bits instead.

Soda machine locks are round and use what many people call a barrel key. In fact, the does look like a barrel. These locks, however, are trash from the get go. See pictures below.

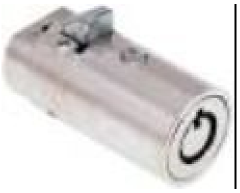

Figure 12 - Vending cylinder

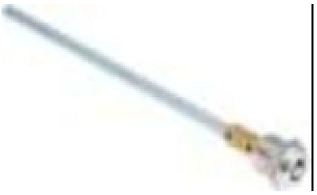

Figure 13 - Vending cylinder with threaded rod

I hope you can see the pictures clearly. Vending machine locks are usually attached to a rod. When the key is inserted, the key acts like a socket wrench. By turning the key counter clockwise, the vending lock threaded rod unscrews from a nut and the door of the vending machine swings open.

Note figure 12. Some vending companies have their employees carry a slap-hammer, normally used for getting dents out of cars. They drill a hole in the lock face, attach the slap-hammer, and slap the lock. When the lock is slapped, the lug in the top of the lock (figure 12) shears and the lock cylinder pops out. On some models (most, I should say) when the lock pops out, it is unlocked. Then, you grab the “T” handle that popped out with the lock and unscrew the lock.

To drill this lock (figure 13), you can get a 1/8 inch bit and gently drill around the face of the lock in the groove where you can see the pins. What you want to do is remove the metal so that the pins can fall out of the front of the lock. As you drill a section out, tap with a soft driver and watch as the pins and springs fly out. Be careful to leave some material in the center of the lock so that you can use a pair of needle nose pliers to turn, and then, pop the lock to the open position.

The deadly error in the Exit Security Bar

I have installed the Exit Security Bar for years and will continue to do so. However, this lock is easily compromised unless you modify the installation as I now do. I will admit that this is the finest product ever made for side and rear doors of businesses. I have seen burglars rip out two deadbolts and a lever on a door, only to be thwarted by the Exit Security Bar. You can go to http://www.exitsecurity.com/ to see this device. Also, you will want to have some of these in stock. Go there now and look at the bar before proceeding with this topic.

This device is designed for all sizes of out swinging commercial doors. This lock is installed by mounting a square bar across the face of the inside of the door, from right to left, about chest high. This bar is held on by two elevator bolts. When installing the elevator bolts, two holes are drilled completely through the door, from outside to inside. The bolts are then hammered into the door from the outside, much like you would hammer in carriage bolts. Here is a picture of an elevator bolt.

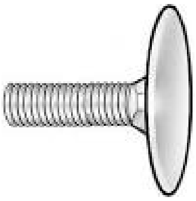

Figure 14 - Elevator bolt

The problem with this mounting concept is that there are only two elevator bolts holding the entire bar onto the door. In the event a person with a drill took a 3/8 bit and drilled through the center of the faces of these bolts from the outside of the door, the entire bar would simply fall to the floor. Basically, the flat faces of the bolt would sheer off from the bolt. From that point on, any burglar could then attack the other locks that are attached to the door.

However, I have come up with what I call my “hurricane installation” for the exit security bar. After the exit security bar is installed, I take a 3/8 inch drill bit, or maybe a smaller one, and drill 4 holes into the bar attached to the door. I drill the holes spaced from one end of the bar to the other. I do not go through the entire bar and into the door. I just go through the first part of the bar. (The bar that attaches to the door is a square tube). Next, I find a suitable, self-tapping Phillips screw. I then drill a starting hole, a tad smaller than the screw I am using, in the part of the square bar that is sitting flush up against the door. I put the drill bit attached to the drill through the larger 3/8 inch hole where it bottoms out on the inside of the square tube attached to the door. The first hole just allows me to get to the part of the bar that is flush against the door. When the holes are drilled, I insert the screws through the bar and into the bar.

In the event somebody drills out the elevator bolts, the bar is still attached to the inside of the door. This makes the Exit Security bar attack proof!

Cabinet locks

Cabinet locks are drilled just like any mortise cylinder is drilled. Cabinet locks that push in to lock are easily drilled. Once drilled, they can be popped open with a simple flat bladed driver.

Padlocks

Easy to drill. If you see pins in the keyway, drill as you would a mortise cylinder. Or, you can drill the entire plug out. When you do this, the ball bearings that lock the padlock down will simply fall out of the lock and the shackle will pop open. If you are drilling a DISC style padlock, use a smaller bit. You can determine which bit to use when you are drilling the lock. Just do not drill through this lock past the last pin. If you do this, you will have to drill the entire face off the lock and force the shackle back with a screwdriver.

This lock is easy to remove but will take some time. It will also take a 5/16th inch carbide tip drill bit. You can get a smaller one to start the hole. However, I just use the 5/16th inch carbide bit. Search the internet for Master Hockey Puck padlock. I am sorry I do not have a picture; but you have to know that, as I am showing you how to bypass these locks in the event they are without keys or broken, the manufacturers would not want me using their stock photos.

So, look at the pictures online. Now, look for the word “MASTER”. Now, look at the 12 o’clock position where you will see the word “hardened”. Where you see the letters “d” and “e” in the word “hardened”, and just an eighth of an inch or less above those two letters, is a drill point that will allow you to drill though the lock and shear the locking bolt in the padlock that holds the lock to the hasp or container it is attached to. This is hardened steel. You will need to drill fast and push hard on this bit. It will want to wobble or veer away from the spot you are drilling. You may want to take a hardened punch and punch a starting point at the drill point before drilling. Once you get the hole started, it progress nicely. When you get through the hardened metal, you will feel the bit start to sink in with a softer, easier feel. You will also see another type of material curling out of the lock as you drill. This means you are into the rod that is attached to the key cylinder. Remove the bit and look in the hole. Sometimes, you will miss the "dead on" spot that shears the rod. If this is the case, carefully angle your drill in the direction you need to go. Once you are through (checking the hole to verify), remove the bit. Use a small probe and push the rod forward towards where the key cylinder is or use it to pull the key cylinder out.

I have done this in as quick as 4 minutes!

Well, I hope that this book has been informative for you! Because security is important, it is imperative that you learn ways to protect your customers. No matter what locks your customers use, there is no substitute for a good alarm and/or video system. All locks can be compromised by anyone, if they have the right tools and enough time. The trick is to make any forced entry time consuming.